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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/737,213
Filing Date: December 16, 2003
Appellant(s): DOUGLIS ET AL.

Cathrine K. Kinslow
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 08/22/2007 appealing from the Office action mailed 01/11/2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

WITHDRAWN REJECTIONS

The following grounds of rejection are not presented for review on appeal because they have been withdrawn by the examiner.

The rejection of claims 1-3, 7-15, 17-20, 24-33 under 35 U.S.C. §101 has been withdrawn.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,850,565	WIGHTMAN	12-1998
20020107866	COUSINS	8-2002
20030085823	LEE	5-2003
20040174276	MCCANNE	9-2004
20030212653	PULST	11-2003

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims objections

1. Minor formality: Claim 24 is objected because it improperly depends on claim 21, which is cancelled. For purpose of examination, claim 24 is treated as it depends on claim 18.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claim 34 is rejected under 35 U.S.C. § 101 as being directed to nonstatutory subject matter.

Claim 34 recites "A computer program product, in a computer readable medium...", however, the claimed program product is not limited to embodiments, which include the hardware necessary to enable any underlying functionality to be realized. Notably, on page 16, lines 7-18 of the instant specification, applicant has provided evidence that applicant intends the "medium" to include "...***type of signal bearing media*** actually used to carry out the distribution.

Examples of computer readable media include recordable-type media, such as a floppy disk, a hard disk drive, a RAM, CD-ROMs, DVD-ROMs, and transmission-type media, such as digital and analog communications links, wired or wireless communications links using transmission forms, such as, for example, radio frequency and ***light wave transmissions"***. As such, the claim is drawn to a form of energy. Energy is not one of the four categories of invention and therefore this claim is not statutory. Energy is not a series of steps or acts and thus is not a process. Energy is not a physical article or object and as such is not a machine or manufacture. Energy is not a combination of substances and therefor not a composition of matter.

A computer-readable medium including a carrier wave, or signal, is non-statutory subject matter as set forth in MPEP 2106 (IV)(B)(2)(a). Therefore, it is non-statutory under 35 USC 101.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time

a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1, 10, 17, 18, 27, 33, 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cousins et al. (US Pub. No. 20020107866), in view of Lee et al. (US Pub. No. 20030085823).

As to claims 1, 34, Cousins teaches a method/a computer program product, in a data processing system, for reducing the size of an object *(i.e. By compressing the markup language files using the method of the present invention, one can obtain approximately 15% to 20% reduction in the size of the file, [0019]),* the method comprising:

dividing an object *(i.e. markup language files)* into a plurality of blocks *(i.e. tags, attributes of the tags, white spaces ,text) ([0011-0014]);*

identifying similar blocks *(i.e. "<table>" and "<TABLE>", [0015])* within the plurality of blocks *([0011-0015]); and*

identifying identical blocks *(i.e. white spaces)* within the plurality of blocks; and

suppressing *(i.e. eliminated)* the identical blocks without differential compression the identical blocks *(i.e. white spaces and end-of-line characters are eliminated to decrease the size of the file, [0011]);*

performing data compression on at least one block within the plurality of blocks, wherein the at least one block is not differentially compressed *(i.e. GZIP compression algorithm, [0011]),* wherein the at least one block is not suppressed, and wherein the step of performing data compression on the at least one block forms a reduced object *(i.e. By compressing the markup*

language files using the method of the present invention, one can obtain approximately 15% to 20% reduction in the size of the file, [0019]); and

storing the reduced object in a computer readable media *(i.e. The Internet has made a voluminous amount of documents stored on computers around the world readily available to anyone having a computer, [0003]).*

Cousins does not teach differentially compressing the similar blocks.

Lee teaches differentially compressing the similar blocks *(i.e. The data compressor receives a series of N data elements, where N is a positive integer, and computes respective differences between two adjacent data among the data. When the differences are all less than a reference value, the data compressor generates delta data on the basis of the differences, receives a series of N new data elements the series of the prior data, and returns to the step of computing the differences, [0045]).*

It would have been obvious to one of ordinary skill of the art having the teaching of Cousins and Lee at the time the invention was made to modify the system of Cousins to include the limitations as taught by Lee. One of ordinary skill in the art would be motivated to make this combination in order to efficiently compress data when differences between adjacent data elements are small in view of Lee ([0043]), as doing so it would give the added benefit of obtaining higher compression efficiency to reduce the size of data as taught by Lee ([0141]).

As per claim 18, Cousins teaches a data processing apparatus for reducing the size of an object, the apparatus comprising:

software instructions and hardware for executing the software instructions *(i.e. The Internet has made a voluminous amount of documents stored on computers around the world*

readily available to anyone having a computer, a modem, a phone line and some kind of browser software , [0003]) wherein the software instructions further comprise:

division means for dividing an object *(i.e. markup language files)* into a plurality of blocks *(i.e. tags, attributes of the tags, white spaces ,text) ([0011-0014]);*

identification means for identifying similar blocks *(i.e. "<table>" and "<TABLE>", [0015])* within the plurality of blocks *([0011-0015]); and*

means for identifying identical blocks *(i.e. white spaces)* within the plurality of blocks; and

means for suppressing *(i.e. eliminated)* the identical blocks without differential compression the identical blocks *(i.e. white spaces and end-of-line characters are eliminated to decrease the size of the file, [0011]);*

means for performing data compression on at least one block within the plurality of blocks, wherein the at least one block is not differentially compressed *(i.e. GZIP compression algorithm, [0011]),* wherein the at least one block is not suppressed, and wherein the step of performing data compression on the at least one block forms a reduced object *(i.e. By compressing the markup language files using the method of the present invention, one can obtain approximately 15% to 20% reduction in the size of the file, [0019]).*

Cousins does not teach compression means for differentially compressing the similar blocks.

Lee teaches compression means for differentially compressing the similar blocks *(i.e. The data compressor receives a series of N data elements, where N is a positive integer, and computes respective differences between two adjacent data among the data. When the*

differences are all less than a reference value, the data compressor generates delta data on the basis of the differences, receives a series of N new data elements the series of the prior data, and returns to the step of computing the differences, [0045]).

It would have been obvious to one of ordinary skill of the art having the teaching of Cousins and Lee at the time the invention was made to modify the system of Cousins to include the limitations as taught by Lee. One of ordinary skill in the art would be motivated to make this combination in order to efficiently compress data when differences between adjacent data elements are small in view of Lee ([0043]), as doing so it would give the added benefit of obtaining higher compression efficiency to reduce the size of data as taught by Lee ([0141]).

As to claims 10, 27, Cousins teaches identifying similar blocks *(i.e. "<table>" and "<TABLE>", [0015])* includes identifying one or more features of the plurality of blocks *(i.e. tags, attributes of the tags, white spaces,text) ([0011-0014]).*

As to claims 17, 33, Cousins teaches the reduced object is transmitted over a network *(i.e. This allows for increased speed in the transmission of the web document file, [0019]).*

6. Claims 2, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cousins et al. (US Pub. No. 20020107866), in view of Lee et al. (US Pub. No. 20030085823), and further in view of Riggs et al. (US Pub No. 20040199669).

As to claims 2, 19, Cousins and Lee do not teach the plurality of blocks are fixed in size.

Riggs teaches the plurality of blocks are fixed in size *(i.e. 2 MB sized block, [0029]).*

It would have been obvious to one of ordinary skill of the art having the teaching of Cousins, Lee and Riggs at the time the invention was made to modify the system of Cousins and Lee to include the limitations as taught by Riggs. One of ordinary skill in the art would be motivated to make this combination in order to extract blocks of original file in view of Riggs, as doing so would give the added benefit of allowing for rapid compression and decompression asynchronously of file blocks as taught by Riggs ([0029]).

7. Claims 3, 7-9, 15, 20, 24-26, 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cousins et al. (US Pub. No. 20020107866), in view of Lee et al. (US Pub. No. 20030085823), and further in view of Wightman (US Pub No. 5,850,565).

As to claims 3, 20, Cousins and Lee do not teach the plurality of blocks are variable in size and determined based on characteristics of content of the object.

Wightman teaches the plurality of blocks are variable in size and determined based on characteristics of content of the object *(i.e. dividing the input file into portions of respective non-preset sizes, col. 12, lines 25-30).*

It would have been obvious to one of ordinary skill of the art having the teaching of Cousins, Lee and Wightman at the time the invention was made to modify the system of Cousins and Lee to include the limitations as taught by Wightman- One of ordinary skill in the art would be motivated to make this combination in order to select the strings that are likely to be most amenable to delta compression in view of Wightman *(col. 2, line 49-62),* as doing so would give the added benefit of providing an improved data compressor that scans one or more data files to

locate variable-length strings of characters (data) that can be more efficiently compressed by delta compression than by traditional compression, as taught by Wightman (col. 2, lines 49-62).

As to claims 7, 24, Cousins teaches:

compressing the object to form a compressed object *(i.e. By compressing the markup language files using the method of the present invention, one can obtain approximately 15% to 20% reduction in the size of the file, [0019]);*

the compressed object *(i.e. GZIP compression algorithm, [0011]);*

the reduced object *(i.e. white spaces and end-of-line characters are eliminated to decrease the size of the file, [0011]).*

Cousins and Lee do not teach:

comparing an effectiveness of the compressed object with an effectiveness of the reduced object; and using the compressed object if the effectiveness of the compressed object is greater than the effectiveness of the reduced object.

Wightman teaches the step of comparing an effectiveness of the compressed object with an effectiveness of the reduced object; and using the compressed object if the effectiveness of the compressed object is greater than the effectiveness of the reduced object *(i.e. The selection of the compression mode depends on which technique can compress the string with a higher compression ratio, col. 2, line 63 to col. 3, line 9).*

It would have been obvious to one of ordinary skill of the art having the teaching of Cousins, Lee and Wightman at the time the invention was made to modify the system of Cousins and Lee to include the limitations as taught by Wightman. One of ordinary skill in the art would

be motivated to make this combination in order to provide the highest overall compression ratio in view of Wightman *(col. 2, line 49-62),* as doing so would give the added benefit of providing an improved data compressor that scans one or more data files to locate variable-length strings of characters (data) that can be more efficiently compressed by delta compression than by traditional compression, as taught by Wightman (col. 2, lines 49-62).

As to claims 8, 25, Wightman teaches effectiveness is measured by one of speed of execution and object size *(i.e. The compressor 124 calculates the frequencies with which the unique characters (data values), the relative offset and the lengths are written to the temporary file 226, col. 6, line 62 to col. 7, line 9).*

As to claims 9, 26, Cousins teaches:

the compressed object *(i.e. GZIP compression algorithm, [0011]);*

the reduced object *(i.e. white spaces and end-of-line characters are eliminated to decrease the size of the file, [0011]).*

Cousins and Lee do not teach if the effectiveness of the compressed object is less than the effectiveness of the reduced object.

Wightman teaches the step of comparing an effectiveness of the compressed object for selecting a compression mode *(i.e. The selection of the compression mode depends on which technique can compress the string with a higher compression ratio, col. 2, line 63 to col. 3, line 9).*

It would have been obvious to one of ordinary skill of the art having the teaching of Cousins, Lee and Wightman at the time the invention was made to modify the system of Cousins and Lee to include the limitations as taught by Wightman. One of ordinary skill in the art would be motivated to make this combination in order to provide the highest overall compression ratio in view of Wightman *(col. 2, line 49-62),* as doing so would give the added benefit of providing an improved data compressor that scans one or more data files to locate variable-length strings of characters (data) that can be more efficiently compressed by delta compression than by traditional compression, as taught by Wightman (col. 2, lines 49-62).

As to claims 15, 32, Cousins and Lee do not teach identifying similar blocks includes: using heuristics to identify similar blocks.

Wightman teaches using heuristics to identify similar blocks *(i.e. a heuristic might calculate the figure of merit from the contents of the string, col. 8, lines 12-24).*

It would have been obvious to one of ordinary skill of the art having the teaching of Cousins, Lee and Wightman at the time the invention was made to modify the system of Cousins and Lee to include the limitations as taught by Wightman. One of ordinary skill in the art would be motivated to make this combination in order to provide the highest overall compression ratio in view of Wightman *(col. 2, line 49-62),* as doing so would give the added benefit of providing an improved data compressor that scans one or more data files to locate variable-length strings of characters (data) that can be more efficiently compressed by delta compression than by traditional compression, as taught by Wightman (col. 2, lines 49-62).

8. Claims 11, 12, 28, 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cousins et al. (US Pub. No. 20020107866), in view of Lee et al. (US Pub. No. 20030085823), and further in view of McCanne et al. (US Pub. No. 20040174276).

As to claims 11, 28, Cousins and Lee do not teach the method of claim 10, wherein identifying one or more features includes calculating one or more fingerprints for the plurality of blocks.

However, McCanne teaches identifying one or more features includes calculating one or more fingerprints for the plurality of *blocks (i.e. the function evaluates to 1 for a given fingerprint having a given offset and window, [0049]).*

It would have been obvious to one of ordinary skill of the art having the teaching of Cousins, Lee and McCanne at the time the invention was made to modify the system of Cousins and Lee to include the limitations as taught by McCanne. One of ordinary skill in the art would be motivated to make this combination in order to determine whether the offset is to be designated as a cut point and segmenting the input data as indicated by the set of cut points in view of McCanne, as doing so would give the added benefit of achieving an improved data compression that can potentially enhance performance or capacity of a file system by reducing the number of bits required to represent all of the files in the system as taught by McCanne *([0009]).*

As to claims 12, 29, McCanne teaches identifying similar blocks further includes:

merging the one or more fingerprints for the plurality of blocks to form one or more fingerprint groups *(i.e. The input data might include sequences of symbols that repeat in the*

input data or occur in other input data encoded in the system. The encoding includes determining one or more target segment sizes, determining one or more window sizes, identifying a fingerprint within a window of symbols at an offset in the input data, [0020]);

calculating super fingerprints for the one or more fingerprints groups *(i.e. Similarly it might use a different fingerprint function and/or a different fingerprint window size at each level in the hierarchy, or use the same functions uniformly throughout, [0061]);*

comparing the super fingerprints to each other to determine common features among the super fingerprints *(i.e. identifying a fingerprint within a window of symbols at an offset in the input data, determining whether the offset is to be designated as a cut point and segmenting the input data as indicated by the set of cut points, [0020]).*

9. Claims 13, 14, 30, 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cousins et al. (US Pub. No. 20020107866), in view of Lee et al. (US Pub. No. 20030085823), and further in view of Pulst et al. (US Pub. No. 20030212653).

As to claims 13, 30, Cousins and Lee do not teach identifying similar blocks further includes:

determining whether blocks have a specified number of matching features.

Pulst teaches determining whether blocks have a specified number *(i.e. classifiable features; [0046]; Fig. 20)* of matching features *(i.e. processing is performed by enriching the matrix with classes for the features while retaining the number of data records and compressing according to the classes, reducing the number of data records, [0008]).*

It would have been obvious to one of ordinary skill of the art having the teaching of Cousins, Lee and Pulst at the time the invention was made to modify the system of Cousins and Lee to include the limitations as taught by Pulst. One of ordinary skill in the art would be motivated to make this combination in order to take into account correlating instances of features and classes in enrichment and compression in view of Pulst *([0029]),* as doing so would give the added benefit of having a process performed by enriching the matrix with classes for the features while retaining the number of data records and compressing according to the classes, reducing the number of data records as taught by *Pulst ([0008]).*

As to claims 14, 31, Cousins and Lee do not teach identifying similar blocks further includes: identifying a reference block that matches a greatest number of features of remaining similar blocks.

Pulst teaches identifying a reference block that matches a greatest number of features of remaining similar blocks *(i.e. Processing 430 is performed by enriching 431 the matrix with classes K for the features M (retaining the number of data records DS), and compressing 432 according to classes K (with a reduction in the number of data records DS), [0101]).*

One of ordinary skill in the art would be motivated to make this combination in order to take into account correlating instances of features and classes in enrichment and compression in view of Pulst *([0029]),* as doing so would give the added benefit of having a process performed by enriching the matrix with classes for the features while retaining the number of data records and compressing according to the classes, reducing the number of data records as taught by *Pulst ([0008]).*

(10) Response to Argument

A. GROUND OF REJECTION 1 (Claims 1-2, 7-15, 17-20 and 24-34)

The rejection of Claims 1-3, 7-15, 17-20, 24-33 under 35 U.S.C. § 101 is withdrawn, hence, arguments are moot.

Claim 34 is rejected under 35 U.S.C. § 101 as being directed to nonstatutory subject matter.

Claim 34 is directed to computer program product, in a computer readable medium, for reducing the size of an object. Although the claimed computer program product is limited to embodiments which include the reduced object stored on a computer readable medium, the claim fails to place the invention squarely within one statutory class of invention. On page 16, lines 7-18 of the instant specification, applicant has provided evidence that applicant intends the "medium" to include signals. As such, the claim is drawn to a form of energy. Energy is not one of the four categories of invention and therefore this claim(s) is/are not statutory. A computer-readable medium including a carrier wave, or signal, is non-statutory subject matter as set forth in MPEP 2106 (IV)(B)(2)(a). Therefore, claim 34 is not limited to any tangible embodiment, instead being sufficiently broad so as to encompass intangible media such as transmission media; the claim is not limited to statutory subject matter and is therefore non-statutory.

B. GROUND OF REJECTION 2 (Claims 1, 10, 17-18, 27, and 33-34)

B1. Claims 1, 10, 17-18, 27, 33-34

B.1.i The proposed combination, considered as a whole, does teach or suggest all of the feature of claim 1

a) A method in a data processing system, for reducing the size of an object

Cousins reads on this claimed limitation as Cousins teaches **a mark-up language file compression method** *(i.e. By compressing the markup language files using the method of the present invention, one can obtain approximately 15% to 20% reduction in the size of the file. Then, one can achieve an additional 5 to 10% reduction in the size of the file following the use of the GZIP or an other standard compression method to compress the resultant web document file, [0029])* of an object *(i.e. character-based markup language files including non-character standard, [0011]).*

Notably, on page 14, appellant states that "Claim 1 is not restricted to character-based markup language and can be used on any object in a data processing system, including non-character-based markup language files and files that do not contain a markup language. Therefore, Cousins does not teach a method, in a data processing system, for reducing the size of an object". The examiner respectfully disagrees. Claim 1 recites a method in a data processing system, for reducing the size of an object, and since object is a single, identifiable unit or entity, character-based markup language file is an object.

Specifically, the term object of the claimed invention equates to ***a block of data*** in the markup language files of Cousins. For instance, the objects of claimed invention are stored in a file, which are called file objects.

> [0025] The redundancy elimination mechanism of the present invention applies aspects of duplicate block elimination and delta encoding at the block level. The redundancy elimination mechanism ***divides file objects into blocks or "chunks."*** The chunks may be content-defined blocks or fixed-length blocks. ***Identical chunks are suppressed***. The redundancy elimination mechanism also performs resemblance detection on remaining chunks to identify chunks with sufficient redundancy to benefit from delta encoding of individual chunks. Any chunks that do not benefit from delta encoding are compressed.

Resemblance detection is optimized by merging groups of fingerprints into super fingerprints. This merging can be constructed to ensure that if two objects have a single super fingerprint in common, they are extremely likely to be within a specified threshold of similarity. Objects are substantially similar if they are similar enough to benefit from delta encoding. (Instant Application)

Similarly, Fig. 1 of Cousins shows blocks of data divided in the markup language files.

47 48
<frameset rows = "113,86% cols = "*" "border = "0"
marginwidth = "0" framespacing = "0" scrolling = "no">
<frameset cols = "394,*" rows = "*" "border = "0"
marginwidth = "0" framespacing = "0" scrolling = "no">

41
<HTML>
<HEAD>
43
44 <TITLE> Welcome to the Website </TITLE>
<meta http-equiv= "content - Type" content = "text/html;
charset = iso-8859-1">
</HEAD>

Furthermore, the *Identical Chunks* of claimed invention equates *to white spaces* of Cousins. (See [0011] of Cousins)

SUMMARY OF THE INVENTION

[0011] The above objects have been achieved in a method for compressing character-based markup language files in which the tags are converted to a single case format and then the attributes of the tags are placed in a specified order within the tags in order to make the tags more uniform. This

order enables larger strings of common text to be found. Additionally, for non-standard characters, the shorter of the two text string representations, describing the character by name or by number, will be determined and will be used in order to reduce character space. Finally, any unnecessary white spaces and end-of-line characters are eliminated to decrease the size of the file. The document that results from the method of the invention will compress more efficiently, yet the content is semantically identical to its original form. The method of the present invention is intended to be used in conjunction with the GZIP compression algorithm, or other similar known compression algorithms, in order to further increase the compression of the overall file, and thus increase the speed at which the file can be transmitted.

From the excerpt paragraph above, ***suppressing identical chunks*** equates to **eliminating** unnecessary ***white spaces*** and **end-of-line characters** of Cousins, See [0011].

Therefore, language markup language file of Cousins consists of a plurality of block of data, each block equates to an object of Application.

Contrary to appellant's arguments, Cousins does teach a method for reducing the size of object as claimed; especially, there is nothing in the claim language specifies the object type, and prohibits that the object cannot be either non-character-based markup language files and files that do not contain a markup language; or character-based markup language files.

b) dividing an object into a plurality of blocks;

Cousins teaches this limitation as "converting all of the tags, including all the attributes within the tags, to a single case format". The step of converting all the tags is understood as the step of indicating all the tags in the file, wherein "**a plurality of blocks**" claimed limitation equates to ***"all the tags"***.

For example, if the original markup language file has the tags <table>, <Table>, all of the tags are converted to upper case format, <TABLE>, in this case, all the tags with lower case format are specified, determined or indicated as a plurality of blocks - <table>, <Table>. This

step equates to "dividing an object into a plurality blocks", wherein an object limitation equates to the original markup language file of Cousins.

c) identifying similar blocks within the plurality of blocks;

Cousin teaches this limitation in step 63 for identifying the similar blocks (i.e. in step 63, is to place all of the attributes in an order within the tags such that longer strings of *common text* may be found, [0015]). Then, "**similar blocks**" of the claimed limitation equates to "***attributes with the tags have common text***".

d) identifying identical blocks within the plurality of blocks;

Cousins teaches this step as "any unnecessary ***white spaces*** and end-of-line characters are eliminated to decrease the size of the file, [0011])", wherein "**identical blocks**" limitation equates to "***white spaces***".

Cousins also teaches the step of identifying identical blocks as "in FIG. 1, the attributes "frame spacing", "marginwidth", and "scrolling", are used more than once. By arranging these attributes so that the attributes are easily combined together, the *compressibility* of the file is increased", See [0015]; hence, it is understood that the plurality of blocks "**frames spacing**" are identical blocks (i.e. ***used more than one***).

e) suppressing the identical blocks without differentially compressing the identical blocks;

Cousins teaches this step as "any unnecessary ***white spaces*** and end-of-line characters are ***eliminated*** to decrease the size of the file" [0011], note that "**suppressing**" of the claimed limitation equated to "***eliminated***".

Cousin also teaches the step of **suppressing the identical blocks** in [0015] as "***redundant attributes*** could be combined".

f) performing data compressing on at least one block within the plurality of blocks;

Cousins teaches this step as "By arranging these attributes so that the attributes are easily combined together, the ***compressibility*** of the file is increased." ([0015])

g) wherein the at least one block is not differentially compressed;

Cousins teaches this limitation as all *white spaces* – **identical blocks** – *are to be eliminated* – not to be compressed - (any unnecessary ***white spaces*** and end-of-line characters ***are eliminated*** to decrease the size of the file, [0011]).

h) wherein the at least one block is not suppressed;

Cousins teaches this limitation in [0015] as "By arranging these attributes so that the attributes are easily combined together, the *compressibility* of the file is increased", ([0015]).

i) wherein the step of performing data compression on the at least one block forms a reduced object;

Cousins teaches a reduced object in [0019] as: "one can achieve an additional ***5 to 10% reduction in the size of the file*** following the use of the GZIP or an other standard *compression* method to *compress* the resultant web document file".

j) storing the reduced object in a computer readable media.

Cousins teaches this step in [0003] as "The Internet has made a voluminous amount of documents ***stored on computers*** around the world readily available to anyone having a computer, a modem, a phone line and some kind of browser software".

k) differentially compressing the similar blocks;

Cousins teaches the step of compressing the similar blocks using an standard compressing method (*(i.e. standard compression method to compress the resultant web document file, [0019])*.

Cousins does not teach the use of a differential compressing method for compressing the similar blocks.

Lee teaches differentially compressing *(i.e. delta-RLC technique, [0045])* the similar blocks *(i.e. compression efficiency when differences between adjacent data elements are small, [0043])*.

Cousins is directed to a method for compressing file to reduce its size *(See [0019]; By **compressing** the markup language files using the method of the present invention, one can obtain approximately 15% to 20% reduction in the size of the file)*.

Lee is directed to an improved compression method *(i.e. compression efficiency when differences between adjacent data elements are small, [0043])*, and reduce the size *(i.e. when the foregoing data string 1 of 256 bytes is compressed by the delta-RLC technique of the present invention, the compressed data becomes 1+1+(1+1)*64=130 bytes, [0141])* of the data string *(See [0043], [0141])*. The size of 256 bytes is reduced to 130 bytes.

Cousins and Lee are directed to the same field as a computer implemented method in data processing for efficiently compressing an object and reducing the size of the object. Therefore, based on Cousins in view of Lee, the prior arts disclose each and every element recited in Applicant's claim 1. It would have been obvious to one ordinary skills of the art having the teachings of Cousins and Lee at the time the invention was made to modify the system of

Cousins to include the differential compressing method as taught by Lee (i.e. delta-RLC technique, [0045]). One of ordinary skills in the art would be motivated to make this combination in order to efficiently compress data when differences between adjacent data elements are small in view of Lee ([0043]), as doing so it would give the added benefit of obtaining higher compression efficiency as compared with conventional compression method, as taught by Lee (Abstract).

With regards to Appellant's argument on page 17 of the Brief that "*Lee* only computes the *differences between two adjacent data* among the received data elements and generates delta data only when the difference between two adjacent data is less than a reference value. In other words, no differences are computed for non-adjacent data. Therefore, if two data elements are similar but not adjacent, then no differences are computed and no delta data is generated".

In response to the preceding appellant's argument, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. It has been brought to Appellant's attention that Lee is directed to **an improved** Run-Length_Coding (RLC) compression method. In the RLC method, series of repeated data are replaced with repeated numbers and pairs of data. When the size of the repeated data is great or the data are frequently repeated, the compression efficiency becomes high (Background of the invention, Lee). Since delta data are generated on the basis of the differences, and since Lee does not indicate that there is no differences are computed for non-adjacent data; in fact, Lee teaches that *"While this invention has been particularly shown and described with references to preferred embodiments thereof, it will be understood by those skilled in the art that various changes in*

form and details may be made herein without departing from the spirit and scope of the invention as defined by the appended claims ([0144]); appellant's conclusion that "if two data elements are similar but not adjacent, then no differences are computed and no delta data is generated" are irrelevant.

B2. Cousins and Lee as combined, established a proper prima facie case of obviousness

Appellant seems to be questioning whether the Cousins and Lee references are combinable to reasonably establish the prima facie case of obviousness under 35 USC 103.

In response to the preceding arguments, the examiner submits that in order for references to be combinable to reasonably establish the prima facie case of obviousness under 35 USC 103, they must be analogous and within the same field of endeavor. Furthermore, in response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In this case, pursuant to Appellant's claim invention which is a method in a data processing system, for reducing the size of a file object, Cousins is directed to a mark-up language file compression method. Similarly, Lee is directed to method for compressing and decompressing data. Both Cousins and Lee's methods provide users with the option of reducing

size of object using compression techniques. These references are analogous and within the same aspects of endeavor, and thus, they are combinable.

Cousins teaches all the claimed limitations as recited above with respect to the respective base claims.

Cousins does not specifically teach differentially compressing the similar blocks. Lee teaches differentially compressing the similar blocks *(i.e. The data compressor receives a series of N data elements, where N is a positive integer, and computes respective differences between two adjacent data among the data. When the differences are all less than a reference value, the data compressor generates delta data on the basis of the differences, receives a series of N new data elements the series of the prior data, and returns to the step of computing the differences, [0045]).* Thus, the compression techniques where *the data compressor generates delta data on the basis of the differences*, based on Cousins in view of Lee, teach differentially compressing the similar blocks. Therefore, it would have been obvious to one of ordinary skill in the art of data processing to combine Cousins and Lee in arriving at the instant invention because Lee's teaching of computing delta data values based on the basis of the differences would enable users of Cousins's system to obtain higher compression efficiency when differences between series of data are small.

Appellant againsts the references individually, it is reminded that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Notably, "Reason, suggestion, or **motivation to combine two or more prior art references in single invention may come from references themselves**, from knowledge of those skilled in art that certain references or disclosures in references are known to be of interest in particular field, or from **nature of problem to be solved**;"Pro-Mold and Tool Co. v. Great Lakes Plastics Inc. U.S. Court of Appeals Federal Circuit 37 USPQ2d 1626 Decided February 7, 1996 Nos. 95-1171, -1181.

C. GROUND OF REJECTION 3 (Claims 2, and 19)

Claims 2, 19 – the plurality of blocks are fixed in size.

In response to appellant's argument that Cousins, Lee would not operate properly if combined with Riggs, the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

Further, in response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge

gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In this case, pursuant to Appellant's claim invention which is a method in a data processing system, for reducing the size of a file object, Cousins is directed to a mark-up language file compression method. Similarly, Lee is directed to method for compressing and decompressing data. Both Cousins and Lee's methods provide users with the option of reducing size of object using compression techniques. These references are analogous and within the same aspects of endeavor, and thus, they are combinable.

Cousins, Lee teache all the claimed limitations as recited above with respect to the respective base claims, but they do not teach the plurality of blocks are fixed in size.

Riggs teaches the plurality of blocks are fixed in size *(i.e. 2 MB sized block, [0029]).*

Riggs is directed to a computer system for efficiently *(i.e. rapid compression, [0029])* compressing extracted blocks data from an object *(i.e. Each extracted block of original file is compressed, [0011])* and transmitting over network *([0010]).*

Riggs further teaches the step of dividing an object *(i.e. file)* into a plurality of blocks – *(i.e. Each extracted block of original file is compressed, [0011]).*

Cousins, Lee, and Riggs provide users with methods in data processing for efficiently compressing an object and reducing the size of the object. Thus, based on Cousins, in view of Lee, and further in view of Riggs, it would have been obvious to one of ordinary skill in the art of data processing to combine Cousins, Lee and Riggs in arriving at the instant invention because Riggs's teaching of extracting and compressing blocks of original file would allow users of Cousins's system to achieve rapid compression and decompression because it helps avoid

limitations of standard file transfer procedures used when communicating one file to another over a communications network.

Appellant againsts the references individually, it is reminded that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Notably, "Reason, suggestion, or **motivation to combine two or more prior art references in single invention may come from references themselves**, from knowledge of those skilled in art that certain references or disclosures in references are known to be of interest in particular field, or from **nature of problem to be solved**;"Pro-Mold and Tool Co. v. Great Lakes Plastics Inc. U.S. Court of Appeals Federal Circuit 37 USPQ2d 1626 Decided February 7, 1996 Nos. 95-1171, -1181.

D. GROUND OF REJECTION 4 (Claims 3, 7-9, 15, 20, 24-26, and 32)

D1. Claims 3, 20 – the plurality of blocks are variable size and determined based on characteristics of content of the object.

With regards to claims 3, 20, contrary to Appellant's arguments, Wightman teaches the plurality of blocks are variable in size and determined based on characteristics of content of the object *(i.e. dividing the input file into portions of respective non-preset sizes, i.e., as the dual-mode compressor processes the files, it advances a "current character" pointer through the data of the files. For each current character, the compressor selects whether to delta-compress or traditionally compress the string of characters that begins with the current character. The*

selection of the compression mode depends on which technique can compress the string with a higher compression ratio, col. 12, lines 25-30).

Wightman is directed to a computer system for efficiently compressing data, using differential compression (i.e. delta compression, col. 5, lines 44-58) method including the step of identify identical block and similar bock *(i.e. If an identical earlier string 222 is found, the compressor 124 writes to a temporary file 226 an entry 228 col. 5, lines 44-58).*

Cousins, Lee, and Wightman are directed to the same field as a computer implemented method in data processing for efficiently compressing an object and reducing the size of the object. Thus, based on Cousins, in view of Lee, and further in view of Wightman, it would have been obvious to one of ordinary skill in the art of data processing to combine Cousins, Lee and Wightman in arriving at the instant invention because Wightman's teaching of dividing the input files into portions where files are divided into "optimum" blocks to enable the delta compressor to provide an acceptably high compression ratio, would provide users of Cousins's system a satisfactory reduction in the time taken to transfer a file.

Appellant againsts the references individually, it is reminded that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Notably, "Reason, suggestion, or **motivation to combine two or more prior art references in single invention may come from references themselves**, from knowledge of those skilled in art that certain references or disclosures in references are known to be of interest in particular field, or from **nature of problem to be solved**;"Pro-Mold and Tool Co. v. Great

Lakes Plastics Inc. U.S. Court of Appeals Federal Circuit 37 USPQ2d 1626 Decided February 7, 1996 Nos. 95-1171, -1181.

E. GROUND OF REJECTION 5 (Claims 11-12, 28, and 29)

E1. Claims 11, 28 – identifying one or more features includes calculating one or more fingerprints for the plurality of blocks.

With regards to claims 11, 28, McCanne teaches identifying one or more features includes calculating one or more fingerprints for the plurality of *blocks (i.e. the function evaluates to 1 for a given fingerprint having a given offset and window, [0049]).*

McCanne is directed to a computer system for efficiently *(i.e. good performance, [0059]; effectively recognized and compressed, [0078])* compressing extracted blocks data from an object *(i.e. segmenting the input data, [0011]) and transmitting over network ([0020]).*

McCanne further teaches the step of dividing an object *(i.e. input data)* into a plurality of blocks *(i.e. each segment, [0020]), (i.e. identifying a fingerprint within a window of symbols at an offset in the input data, determining whether the offset is to be designated as a cut point and segmenting the input data as indicated by the set of cut points, [0020]).*

Cousins, Lee, and McCanne are directed to the same field as a computer implemented method in data processing for efficiently compressing an object and reducing the size of the object. Thus, based on Cousins, in view of Lee, and further in view of McCanne, it would have been obvious to one of ordinary skill in the art of data processing to combine Cousins, Lee and McCanne in arriving at the instant invention because McCanne's teaching of utilizing segmentation

in compression to reduce the number of actual bits required to represent a larger input sequence, would enhance performance or capacity of Cousins's file system by reducing the number of bits required to represent all of the files in the system to allow for more efficient transmission of data.

Appellant againsts the references individually, it is reminded that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Notably, "Reason, suggestion, or **motivation to combine two or more prior art references in single invention may come from references themselves**, from knowledge of those skilled in art that certain references or disclosures in references are known to be of interest in particular field, or from **nature of problem to be solved**;"Pro-Mold and Tool Co. v. Great Lakes Plastics Inc. U.S. Court of Appeals Federal Circuit 37 USPQ2d 1626 Decided February 7, 1996 Nos. 95-1171, -1181.

F. GROUND OF REJECTION 6 (Claims 13-14, and 30-31)

F1. Claims 13, 30 – determining whether blocks have a specified number of matching features.

With regards to claims 13, 30, Pulst teaches determining whether blocks have a specified number *(i.e. classifiable features; [0046]; Fig. 20)* of matching features *(i.e. processing is performed by enriching the matrix with classes for the features while retaining the number of data records and compressing according to the classes, reducing the number of data records, [0008]).*

Pulst is directed to a computer system for efficiently compressing data records (*i.e. compressing according to the classes, reducing the number of data records*, [0008]).

Cousins, Lee, and Pulst are directed to the same field as a computer implemented method in data processing for efficiently compressing an object and reducing the size of the object. Thus, based on Cousins, in view of Lee, and further in view of Pulst, it would have been obvious to one of ordinary skill in the art of data processing to combine Cousins, Lee and Pulst in arriving at the instant invention because Pulst's teaching of performing processes of enriching the matrix with classes for the features while retaining the number of data records and compressing according to the classes, reducing the number of data records, would enable Cousins's system to obtain a compression method that provides shortening the computation time while achieving sufficient accuracy and reducing the size of system resources necessary for the calculation.

Appellant againsts the references individually, it is reminded that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Notably, "Reason, suggestion, or **motivation to combine two or more prior art references in single invention may come from references themselves**, from knowledge of those skilled in art that certain references or disclosures in references are known to be of interest in particular field, or from **nature of problem to be solved**;"Pro-Mold and Tool Co. v. Great Lakes Plastics Inc. U.S. Court of Appeals Federal Circuit 37 USPQ2d 1626 Decided February 7, 1996 Nos. 95-1171, -1181.

G. Conclusion

Appellant's arguments have been considered but they are not persuasive, the Examiner has detailed and established a prima facie obviousness rejection against all of the claims.

As discussed, Cousins and Lee references are within the same field of endeavor as claimed invention and one of ordinary skill in the art would be motivated to look to Lee for utilizing delta compression to differentially compress similar blocks.

Plus, Cousins and Lee and Riggs can be properly combined to yield the claimed invention since they are analogous art and Riggs complements Barr; so are all the combination of: Cousins and Lee and Wightman, Cousins and Lee and McCanne, Cousins and Lee and Pulst. They are in the same field as the claimed invention such as method for compressing, and each of the prior arts represents different data compression techniques that reads on the claimed invention.

Therefore, "Prima facie case of obviousness is established when teachings of prior art appear to suggest claimed subject matter to person of ordinary skill in art; it is incumbent upon applicant to go forward with objective evidence of unobviousness once prima facie case is established." In re Rinehart (CCPA) 189 USPQ 143 Decided Mar. 11, 1976, No. 75-608 U.S. Court of Customs and Patent Appeals.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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